

Does it burn?

This black powder is made of carbon. Carbon is able to burn.



- 1 Copper reacts with oxygen to form copper oxide.

This black powder is copper oxide.



Does copper oxide burn? Give reasons for your answer.

- A Yes
- B No
- C More information needed

Response activity

Does it burn?

Overview

Learning objective:	During combustion new products are formed from the combination of oxygen with the fuel, resulting in an increase in measured mass.
Observable learning outcome:	Recognise that the burning of a metal involves combination with oxygen.
Activity type:	application and practice- problem
Key words:	combustion, oxygen

This activity can help develop students' understanding by addressing the misunderstandings revealed by the following diagnostic question:

- Oxygen need

What does the research say?

Children's Ideas in Science (Driver, Guesne and Tiberghien, 1985) describes research which found that whilst about a third of the 11-12 year olds in the study indicated an appreciation that oxygen is needed for burning their explanations for this varied. The explanations included misunderstandings such as "the fire needs oxygen to eat it away" and "the fire likes air".

Research of ideas of secondary students in New Zealand found that the majority of students did recognise the need for oxygen in burning but many did not regard it as being actively involved.

Students appeared to have difficulty in appreciating that burning involves combination with oxygen.

Ways to use this activity

This activity gives students the opportunity to practise applying their understanding and to clarify their thinking through discussion. To support this, students should answer the question in pairs or small groups.

Listening to individual groups as they work often highlights any difficulties they might have. These can often be overcome, through a whole class clarification or redirection part way through the activity.

Differentiation

If some students are working with a teaching assistant, then a list of prompt questions could help to make this activity more purposeful.

Expected answers

No. Copper oxide does not burn because the copper has already combined (reacted) with the oxygen.

Acknowledgments

Developed by Helen Harden (UYSEG), from an idea from Children's Ideas in Science (Driver et al., 1985).

Images:

Carbon powder - FK1954 - Own work, Public Domain,
<https://commons.wikimedia.org/w/index.php?curid=5984924>

Copper oxide powder - Adam Rędzikowski

References

Driver, R., Guesne, E. and Tiberghien, A. (1985). *Children's Ideas in Science*, Milton Keynes, UK: Open University Press.